

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC UTILITIES

April 18, 1979

D.P.U. 19561

Petition of New England Power Company for a determination by the Department that the present situation of a parcel of land owned by the Petitioner off the northwesterly side of Temple Street in West Boylston, Massachusetts as shown in detail on maps or plans on file with the Department, and the additional electric substation facilities to be erected and maintained thereon by the Petitioner for the transmission and distribution of electricity, are reasonably necessary for the convenience and welfare of the public, and that said land and the substation structures to be built and maintained thereon be exempted from the operation of the zoning by laws of said town to the extent applicable thereto.

Appearance: Albert V. Colman, Esq.,
20 Turnpike Road
Westborough, Massachusetts, 01581

for the Petitioner, New England Power Company

On April 21, 1978, the New England Power Company (Company) filed with the Department of Public Utilities (Department) a petition concerning proposed additional substation facilities to be constructed and operated at its Wachusett Substation No. 47 in the Town of West Boylston.

In D.P.U. 19561, the Department is asked to determine, under Section 3 or section 10 of Chapter 40A of the Massachusetts General Laws, as the case may be, that the present situation of a parcel of land off the northwesterly side of Temple Street in said Town of West Boylston and consisting of approximately 1.68 acres and the proposed additional substation facilities to be built and maintained thereon, are reasonably necessary for the convenience and welfare of the public, and that such land and structures be exempted from the zoning by law of the Town of West Boylston to the extent applicable thereto.

In a related matter, a Department decision in D.P.U. 18352, dated August 17, 1977, the Commission determined that a parcel of land owned by the Company, adjacent to the proposed facilities in D.P.U. 19561, required exemption from the zoning by law of the Town of West Boylston, pursuant to the provisions of section 10 of Chapter 40A of the Massachusetts General Laws as amended to the extent it may be used for the purpose of 69 KV transmission line switching and sectionalizing.

By order of the Department dated May 23, 1978, the matter was scheduled for public hearing at the Town Hall, West Boylston, Massachusetts, on June 19, 1978, at which time the direct testimony of the Company was presented and all other parties in interest were given an opportunity to be heard. Mr. Richard Hessin, Chairman of the West Boylston Board of Selectmen, attended the hearing. No one filed appearances or opposed the Company's petition

The testimony, exhibits and evidence in D.P.U. Nos. 18350, 18351 and 18352, all of which relate to the initial installation of 69 KV facilities at the Wachusett Substation, were incorporated by reference into the Department's record of D.P.U. 19561. During the hearing, the Department asked for certain additional materials and information which the Company subsequently furnished.

Purpose of the Proposed Facilities

Presently, Wachusett Substation No. 47 is basically a switching station with three 69 KV switches for sectionalizing the A1/B2 69 KV transmission lines which interconnect Pratts Junction and Millbury No. 1 Substations, and the A53/B54 lines which supply Chafflins and Cooks Pond

Substations. Wachusett is approximately 13 miles north of Millbury and 11 miles south of Pratts Junction. Millbury and Pratts Junction are also connected by two 115 KV lines, designated O-141 and P-142, primarily along the same right of way which also contains a 345 KV line originating from Sandy Pond in Ayer to the Millbury Substation.

The autotransformers at both Pratts Junction and Millbury Substations provide the major supply capacity for the 69 KV system in the central Massachusetts area. The Company has six 115 KV transmission lines at Pratts Junction Substation which is the source that supplies the 115 KV/69 KV autotransformers. At Millbury No. 1 there are five 115 KV/69 KV autotransformers. Both substations have some autotransformers equipped with 13 KV tertiary windings.

The Company's witness testified that the installation of a 115 KV/69 KV source at Wachusett Substation No. 47 would provide the best approach for increasing the supply capability to the 69 KV systems for this area. The addition of a 115 KV/69 KV autotransformer with a 40 to 70 MVA rating and an addition of one 69 KV switch would provide the needed relief for the Pratts Junction autotransformers and also provide a source closer to the load centers that are supplied in the area. This would be accomplished by tapping the P-142 115 KV transmission line through a circuit switcher into the autotransformer. Future service reliability will be improved and transmission energy losses will be reduced with a source closer to the load.


In addition, the Company stated that in the past, the A1/B2 line has experienced double line outages particularly during the lightning season because this line presently operates as a double circuit on a

common tower. The installation of the 69 KV switches at Wachusett Substation resolved the problem for most of the load by reducing line exposure and isolating line faults. However, the line segment from Pratts Junction to Millbury would still be vulnerable. Double line outages would interrupt the supply to Fitch Road Substation in Clinton. Establishing a source between Pratts Junction and Millbury Substations will permit reconnection or bifurcation of the A1/B2 line between Wachusett and Pratts Junction to operate in parallel as a single circuit with loop switching at Fitch Road to alleviate the reliability problem. Therefore, if the Company experiences a double fault, it will lose either the section from Pratts to Fitch Road or the section from Wachusett to Fitch Road. One end or the other should be alive to maintain service to Fitch Road Substation.

Necessity for the Capacity

The proposed tap of the P-142 115 KV transmission line and the installation of a 115 KV/69 KV autotransformer at the Wachusett Substation will provide an increased supply capability and a reliability factor to the 69 KV transmission system in the area.

The actual 1977 winter peak load supplied by the A1/B2 69 KV lines was approximately 76 megawatts. The combined present and future rate of growth projected by the Company is estimated at 5 per cent for the total load in the area served by the A1/B2 line, not including the various load transfers that are contemplated by the Company in the future, approximating 5 per cent by 1984. The A1/B2 lines which also supply the North Grafton Substation in Grafton; Shrewsbury Substation; Greendale Substation in Worcester; Fitch Road Substation in Clinton; and also connects with the M.D.C.



Generating Station in Oakdale, now have adequate normal and emergency capabilities based on a single contingency for the loads that it supplies.

The need for the capacity involves the emergency firm capability of the 115 KV/69 KV autotransformer at Pratts Junction Substation.

The Company's long range studies indicate that the autotransformers could be loaded beyond their emergency firm capability by this summer. The present summer firm capacity of the 69 KV source would provide for a load of 75.7 MVA if the largest unit, Pratts No. 6 autotransformer, were to be out of service. Under this condition, the Company expects that the 69 KV capability would be exceeded during the 1979 summer peak when the loading is projected to be about 78 MVA.

Site of the Proposed Facilities

The proposed facilities will be added to the existing Wachusett Substation at West Boylston which presently consist of a two bay terminating structure for four 69 KV lines, a 20 x 30 foot control house; three 69 KV oil circuit breakers, together with the necessary disconnect switches and facilities to terminate six 69 KV lines

In this petition, the Company proposes to install one 69 KV oil circuit breaker together with necessary disconnect switches; one 40/53.3/66.6 MVA 115/69 KV autotransformer; 115 and 69 KV buses; and a two-bay terminating structure to terminate four 115 KV lines.

Ultimately, the Company has future plans to install a second autotransformer, nine 115 kV oil circuit breakers and switches, and two additional 69 KV breakers and associated switches, some time in the early 1990's. The area required for the ultimate development of the station is "T" shaped. The existing area is 260 x 135 feet. The ultimate development will require that this area be enlarged by an additional 430 x

170 feet. This entire area will be enclosed by a 7 foot high chain link fence topped by three strands of barbed wire sloped outward. Crushed stone will cover the unused areas inside the fence. Due to the location of substation relative to the street, no landscaping will be required. The natural growth will provide adequate screening.

A part of the autotransformer will be situated within the existing area previously exempted from the operation of the zoning by law under D.P.U. 18352. This substation will be built in accordance with the latest standards established by the American National Standards Institute and by the Institute of Electrical and Electronics Engineers.

Presently the center line of a 345 KV line, passes directly through the proposed 115 KV terminating structure. The two 115 KV lines must be relocated into this new terminating structure. The No. 345 line will by pass the proposed substation and 115 KV (O-141 and P-142) lines will be terminated on a new substation terminating structure. However, only the P-142 line will be electrically connected to the substation at this time. One new structure will be added and two existing structures will be rebuilt. One existing tower on each line will have to have guys added.

Environmental Considerations

The possible environmental impact of the proposed additions to the Wachusett Substation has been analyzed as prescribed by the Massachusetts Environmental Policy Act, Section 62, Chapter 30, of the Massachusetts General Laws.

In general, the project is designed for a minimum of environmental impact. The Wachusett Substation is located in an open field adjacent to the transmission line corridor and is physically removed from the highway,

Route 140. The natural screening along the right of way and along the street which shields it from view will be left intact. The substation additions will not involve any air or water pollution, except for possible temporary noise and dirt during construction. There will be no unapproved construction in wetlands.

A sound level survey conducted of the area indicated an ambient nighttime sound level of 35 dB on the A-weighted sound scale. The sound level after the installation of the transformer at the nearest residence which is approximately 900 feet from the location of the transformer is expected to be 37 dB.

Pursuant to section 62 as amended, and the Department's procedural rules regarding environmental reporting, the Department, on March 27, 1978, submitted a Limited Environmental Assessment Form (LEAF No. 03014) to the Executive Office of Environmental Affairs.

On April 28, 1978, the Secretary of the Executive Office of Environmental Affairs issued a comment that the LEAF adequately and properly complied with section 62 and the regulations governing the preparation of environmental impact reports. The Executive Office of Environmental Affairs further decided that a report was not necessary.

Accordingly, after notice, as provided by statute, a public hearing, an evaluation of the impact on the natural environment, an inspection of the area, and consideration of the evidence, the Department is of the opinion and hereby

FINDS: that the reconstruction and operation of the Wachusett Substation #47 in West Boylston for the purposes of installing a 115/69 KV transformer, and necessary circuit breaker, buses and terminating structures is justified, and

DECIDES that the present and proposed situation of the substation site in question and the structures to be built and maintained thereon are reasonably necessary for the convenience and welfare of the public,

Accordingly, it is

ORDERED: That the parcel of land owned by the Company, known as the additions to Wachusett Substation #47 and described as follows:

Beginning at a point along the most northwesterly boundary of said portion of said parcel at a point at other land of New England Power Company, said point being 130.0 feet N 57° 53' 50" E from a point which is 160.0 feet S 34° 00' 00" E from a stone bound at the corner of land of the Commonwealth of Massachusetts, Metropolitan District Commission and the Boston and Maine Corporation;

thence running N 35° 06' 10" W, 85.0 feet to a point;
thence turning and running N 57° 53' 50" E 170.0 feet to a point;
thence turning and running S 32° 06' 10" E 430.0 feet to a point;
thence turning and running S 57° 53' 50" W 170.0 feet to a point;
thence turning and running N 35° 06' 10" W, 85.0 feet and

260.0 feet to the point of beginning--all of said courses and distances being by said other land of New England Power Company;

is hereby exempted from the zoning by law of the Town of West Boylston, pursuant to the provisions of section 3 of Chapter 40A of the General Laws as amended, to the extent it may be used for substation and switching purposes as set forth in testimony given at the hearing, subject, however, to

the following conditions: said facilities shall be located, constructed and landscaped subject to the Department's approval.

By order of the Department,

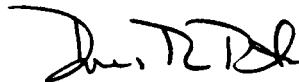
(signed)

DORIS R. POTE

Chairman

A true copy

Attest:



Chairman

Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the order of the Commission be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission or within such further time as the Commission will allow upon request filed prior to the expiration of the twenty days after the date of service of said decision, order or ruling. (Sec. 5, Chapter 25, G.L. Ter. Ed. as most recently amended by Chapter 485 of the Acts of 1971).